

**Before the  
Federal Communications Commission  
Washington, DC 20554**

In the matter of	)	
	)	
Modification of Parts 2 and 15 of the	)	
Commission's Rules for unlicensed devices and	)	ET Docket No. 03-201
Equipment approval.	)	

**Comments of Assa Abloy ITG, HID Corporation, Indala Corporation**

Assa Abloy Identification Technologies Group (ITG), with corporate offices in Irvine, California, manufactures, markets, and sells RFID Proximity Readers and Transponders through HID Corporation, and Indala Corporation. Products are extensively used in Access Control and Security Systems. Proximity Reader transmitters operate at 125 kHz or 13.56 MHz.

It is respectfully asked that the Commission consider alternate requirements for Modular Transmitters that are Inductive radiators instead of E-Field radiators.

ITG manufactures a number of modules intended to be integrated into an OEM's final product. These modules contain a transmitter that drives a loop antenna, either a coil of wire (125 kHz) or coiled traces on a circuit board (13.56 MHz).

Many primarily of these modules have been put into plastic enclosures by ITG, have Part 15 Certification, and are marketed and sold as Proximity Readers (see [www.hidcorp.com](http://www.hidcorp.com)). Plastic enclosures are needed because the antennas are inside the enclosure and need to radiate their H-Field through the enclosure in order to energize passive credentials such as cards and keyfobs.

Proximity Readers need to meet Part 15 intentional radiator spurious emissions requirements without a metal shielded enclosure. ITG has learned how to design boards, power & ground planes, and circuits that control spurious emissions at their sources with no added shielding.

These Proximity Readers are "short range" devices that radiate primarily H-Field. The spurious radiated emissions, of course, are E-Field but meet Class B emissions levels.

**Proposed Allowances for Modular Inductive Transmitters**

Allow FCC Certification under Part 15 for Inductive Transmitter Modules under the following conditions:

1. No RF shielding is required, provided both radiated and conducted emissions meet Part 15 intentional radiator requirements as a stand-alone module.
2. "Excessive data rates" and "over-modulation" do not apply because of slow data rates and AM modulation always less than 100%.
3. Module power supply on-board regulation is not required because either regulated DC power is provided by the OEM's product or voltage within a range specified for the module that is known to meet FCC requirements for the stand-alone module.
4. Antennas
  - a. 125 kHz module antennas
    - i. The current driven coils are series resonated for maximum current.
    - ii. The radiated H-Field is proportional to current, coil area, and number of turns.
    - iii. A module onboard series resonating capacitor requires the antenna be a specific inductance.

- iv. ITG specifies an antenna size range based on a maximum size that is known to meet FCC requirements with the stand-alone module. The OEM chooses an antenna coil shape and area at or less area than the maximum and then determines how many turns are required for the specific inductance. The antenna can be mounted on the module board or remote from the board.
    - v. There are two connections to the antenna coil.
  - b. 13.56 MHz module antennas
    - i. The first antenna configuration is module outer perimeter internal board traces. A Faraday shield is constructed with wide traces on the outer board layers.
    - ii. The second is similar construction on a remote antenna board connected by 50 $\Omega$  coax.
    - iii. The transmitter output impedance and antenna input impedance are 50 $\Omega$ .
    - iv. The H-Field is proportional to antenna area and number of turns.
    - v. In the remote antenna design guidelines for the OEM, the maximum area and number of turns known to meet FCC requirements are specified.
- 5. The OEM's final product containing the inductive transmitter module:
  - a. Required to meet FCC EMC requirements as an unintentional radiator, which could be Class A if the intended market is commercial.
  - b. Meeting FCC requirements is the responsibility of the OEM.
  - c. Testing to FCC intentional radiator requirements is not required.

#### **Benefits of the Proposal**

- 1. Module manufacturer
  - a. Offer modules at lower cost because of no additional shielding.
  - b. Offer modules without an on-board regulator for lower cost.
  - c. Modules that are already FCC Certified are more attractive to OEM's.
- 2. OEM
  - a. Lower testing cost
  - b. No FCC Certification cost
  - c. Faster product to market
- 3. Public
  - a. Lower final product cost
  - b. Faster product availability

Respectfully submitted,

ASSA ABLOY ITG

By: Frank de Vall  
Sr. Engineering Manager – Compliance

Assa Abloy ITG  
Research & Development Center  
11674 N. Huron Street  
Denver, CO 80234-2924  
303-453-4018  
FAX: 303-453-3340  
[fdevall@assaabloyitg.com](mailto:fdevall@assaabloyitg.com)

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